

The listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-25 (canceled)

26. (currently amended) An array device comprising

(a) an examination site having a surface,

(b) a mixture of at least two carriers randomly distributed on the surface, each of the at least two carriers having an optically detectable code that distinguishes it from the other carrier, and each of the at least two carriers carrying an analyte that is identifiable by the respective code on the carrier,

D, (c) an imaging device configured to acquire at least one image of the mixture, and

(d) an image analysis system that uses code information from the image to interpret experiments on the analytes by producing a mask for each carrier or set of carriers having the same code, and measuring one or more reporting modalities within each mask.

27. (previously amended) The device of claim 26, wherein the mixture comprises three or more distinctively coded carriers.

28. (original) The device of claim 26, wherein each of the at least two carriers has a colored code.

29. (previously amended) The device of claim 28, wherein the colored code comprises at least two distinct colored optically identifiable marks.

30. (previously amended) The device of claim 26, wherein the carriers are formed from fused glass fibers.

31. (previously amended) The device of claim 26, wherein the carriers comprise nanocrystals.

32. (original) The device of claim 26, wherein the surface is glass.

33. (original) The device of claim 26, wherein the imaging device acquires a digital image of the at least two carriers.

34. (previously amended) The device of claim 26, wherein the imaging device uses a CCD camera device to acquire the at least one image.

35. (previously amended) The device of claim 26, wherein the imaging device comprises a microscope.

36. (previously amended) The device of claim 26, wherein the imaging device comprises a confocal optics structure.

37. (original) The device of claim 26, wherein the analyte comprises nucleic acid.

38. (original) The device of claim 26, wherein the analyte is selected from the group consisting of antibodies, enzymes, hormones, receptors, and inhibitors.

39. (original) The device of claim 26, wherein the analyte comprises a molecular beacon compound.

40. (previously amended) The device of claim 26, wherein the code on each of the at least two carriers comprises a distinctive spatial arrangement of optically identifiable marks.

41. (original) The device of claim 26, wherein each optically identifiable mark is selected from a group of N possible colors, where N is greater than one.

Claims 42-44 (canceled)

45. (original) The device of claim 26, wherein the carriers have a shape that is flat or cylindrical.

Claims 46-53 (canceled)

54. (original) The device of claim 26, wherein the analyte is a cell.

55. (original) An array device comprising

- (a) an examination site having a surface,
- (b) a mixture of at least two carriers disposed on the surface, each of the at least two carriers being formed of fused glass fibers and having an optically detectable code that distinguishes it from the other carrier, and each of the at least two carriers carrying an analyte that is identifiable by the respective code on the carrier,
- (c) an imaging device configured to acquire at least one image of the mixture, and
- (d) an image analysis system that uses code information from the image to interpret experiments on the analytes.

56. (original) The device of claim 55, wherein the carriers have a shape that is flat.

57. (original) The device of claim 55, wherein the fused glass fibers define the code.

58. (original) The device of claim 55, wherein the colored code comprises at least two distinct colored optically identifiable marks.

59. (original) The device of claim 55, wherein the code on each of the at least two carriers comprises a distinctive spatial arrangement of optically identifiable marks.

60. (new) The device of claim 26, wherein each of the at least two carriers has a flat shape.

61. (new) The device of claim 26, wherein each of the at least two carriers is at least partially transparent.

62. (new) The device of claim 26, wherein the reporting modality is a fluorescent color.

63. (new) The device of claim 26, wherein the reporting modality is an absorptive color.

64. (new) The device of claim 33, wherein the digital image is corrected for background variation.

65. (new) The device of claim 33, wherein the digital image is thresholded.

66. (new) An array device comprising

(a) an examination site having a surface,

(b) a mixture of at least two flat carriers randomly distributed on the surface, each of the at least two carriers having an optically detectable code that distinguishes it from the other carrier, and each of the at least two carriers carrying an analyte that is identifiable by the respective code on the carrier,

(c) an imaging device configured to acquire at least one image of the mixture,  
and

(d) an image analysis system that uses code information from the image to interpret experiments on the analytes.

67. (new) The device of claim 66, wherein each of the at least two carriers is at least partially transparent.

68. (new) An array device comprising

(a) an examination site having a surface,

D, (b) a mixture of at least two carriers randomly distributed on the surface, each of the at least two carriers having an optically detectable code that distinguishes it from the other carrier, and each of the at least two carriers carrying an analyte that is identifiable by the respective code on the carrier,

(c) an imaging device configured to acquire at least one image of the mixture,  
and

(d) an image analysis system that uses code information from the image to interpret experiments on the analytes by determining codes and positions of the carriers prior to measuring reporting modalities associated with analytes on identified carriers.